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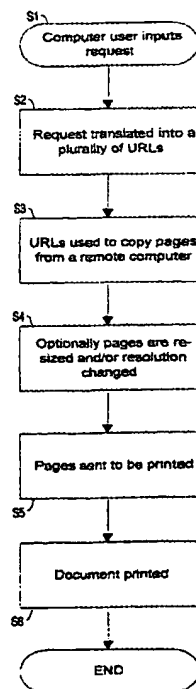
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- (71) Applicant (for all designated States except US): IMAGE APPLICATIONS LIMITED [GB/GB]; 6 Lingwood Drive, Croftmead, Nuneaton CV10 7DR (GB).
- (72) Inventors; and
(75) Inventors/Applicants (for US only): MAYALL, Stephen [GB/GB]; 6 Lingwood Drive, Croftmead, Nuneaton CV10 7DR (GB). MAYALL, John [GB/GB]; 9 Mill Croft Close, Rochdale, Lancs OL12 7VE (GB).
- (74) Agent: MAYALL, John; 9 Mill Croft Close, Norden, Rochdale, Lancs OL12 7VE (GB).
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(54) Title: METHOD



(57) Abstract: A method for printing a copy of a multi-page patent document originally stored on a remote server (17). In the method, a user uses a keyboard (7) to input to a personal computer (1) a request for a multi-page patent document. The personal computer (1) translates the request into a plurality of URLs corresponding to the location of pages of the multi-page patent document on the server (17). The local computer uses the URLs to communicate with the server (17) via the world wide web (15), and copies the pages of the multi-page patent document from the server (17), so that they can be printed out on a printer (13).

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Method

Field of Invention

5 This invention relates to a method for printing a multi-page document, to a computer program, to a computer when programmed with the program and to a computer program product, such as a data carrier, carrying the program.

Description of Related Art

10 Recently it has become possible to search for and collect all types of information using the Internet. When searching and collecting information over the Internet, there is for example a search method such that a keyword input by the user is entered into a search engine, and the addresses of all of the pages hit using that keyword are output.

15 More recently patent offices have been making their collection of patent specifications freely available on the Internet. For example, the European patent office has launched the Esp@cenet collection of patent specifications which, in June 1999, covered patent specifications back to the 1920s and 63 countries. This is available at the URL <http://dips-2.dips.org/dips/ep/en/dips-epd.htm> and related URLs, e.g. <http://gb.espacenet.com/>.

20 National patent offices in EPC contracting states also host collections of Esp@cenet patents. The US Patent and Trademark Office stores many US patents at the URL <http://www.uspto.gov/patft/>. Many other URLs exist where patent specifications can be found, for example Australian patents can be obtained from http://pericles.ipaustralia.gov.au/au/au/au_paint_results.process_result_page patent,

25 Chinese patents from <http://202.96.46.251:8080/login.html>, Canadian patents from http://patents1.ic.gc.ca/srch_adv-e.html and so on. More URLs can be found at <http://www.mayallj.freemove.co.uk/>.

30 A problem with the many of the collections of patent specifications, and for non-patent documents at other sites, is that each page is often stored at a different URL. Thus, if a computer user wishes to print off a multi-page document he has to manually go to the URL where the first page of the document is stored, print that page, go to the URL where the next page is stored, print that page, and so on until all of the pages have been printed off. This page-by-page printing can be very time consuming, particularly for long patents

35 such as those in biotechnology and computing. One recent PCT specification in the biotechnology field was several thousand pages long and to manually print that off would take prohibitively long time using the currently available Internet facilities.

40 There is a need for a better way of extracting multi-page documents from the Internet where the pages are stored at separate URLs.

Summary of the invention

The present invention seeks to provide a new and useful method for accessing multi-page documents stored on a remote computer, such as an internet server, as well as to a computer which can perform the method, and a computer program product which can cause a computer to perform the method.

According to an aspect of the present invention there is provided a method for printing a copy of a multi-page document originally stored on a remote computer comprising the steps of:

- (i) a computer user inputting on a local computer a request for the multi-page document;
- (ii) the local computer translating the request into a plurality of URLs corresponding to the location of pages of the multi-page document on the remote computer;
- (iii) the local computer copying the pages of the multi-page document from the remote computer by means of the URLs to the local computer or to a computer specified by the computer user;
- (iv) the local computer or the computer specified by the local computer sending the multi-page document to be printed; and
- (v) the printer printing the multi-page document onto a sheet material.

Preferably the method does not require the intervention of the computer user between the copying of two or more pages (or more preferably between the first and last page) of the multi-page document. This may be achieved by the translation of the request by the local computer (or optionally by the remote computer) into the URLs corresponding to the location of pages of the multi-page document on the remote computer. The local computer may also avoid any need for intervention of the computer user between the printing of two or more of the pages, or even the first and last page, of the multi-page document by the 'automation' it provides.

When the remote computer translates the request into the URLs corresponding to the location of pages of the multi-page document on the remote computer there should be no requirement or intervention by then computer user (e.g. no need to input data) between the copying of two or more of the pages, or preferably between the copying of the first and last page, of the multi-page document.

The local and remote computers may be connected by any suitable means, preferably by a network, more preferably by a local area network or the Internet.

For convenience the multi-page document may be converted to a single page document after the multi-page document has been copied to the local computer or to the computer specified by the local computer. This makes the document easier to view as a contiguous document, instead of numerous individual pages which have to be opened separately.

Preferably the method does not require the intervention of the computer user between step (iv) and step (v). This may be achieved, for example, where the documents are in the .pdf file format (as favoured by Esp@cenet and Canadian patent office) by using Adobe Acrobat Reader version 4.0 or higher, available from <http://www.adobe.com>.

The multi-page document is preferably a patent specification (or a portion of a patent specification), more preferably a PCT, US, European, UK, Canadian, Japanese, Community patent or patent application filed under the Community Patent convention, or a national German, Swiss, French, Austrian, Australian, ARIPO, Italian, Dutch, Belgian, Korean, Taiwanese or Chinese patent application or patent.

The user may have the option of selecting whether the entire patent specification is printed out, or only a selected portion (e.g. only the figures and description).

Furthermore, the user may have the option of selecting more than one patent document (or respective portions from more than one patent document), the method in this case including (e.g. successively) obtaining the documents from the remote server (or even from more than one remote servers).

In a preferred embodiment the method further comprises translating the text on one or more of the pages of the multi-page document by means of a computer program from a first language to a second language which is different from the first language, for example from German or French into English. Examples of first and second languages include English, French, German, Spanish, Italian, Portuguese, Welsh, Croatian, Russian, Japanese (especially Shif Jiss), Finnish, Dutch, Danish, Icelandic, Norwegian, Czech, Polish, Bulgarian, Romanian, Greek, Serbian, Slovenian, Flemish, Chinese and Hungarian.

The translation from the first language to the second language is preferably performed on by the local computer or by a computer other than the local computer or the remote computer from which the document was obtained. For example the text may be sent to the Systransoft site at <http://www.systransoft.com/> , translated there and returned to the local computer. Even better, the text may be sent to the Intertran web site at <http://www.tranexp.com/InterTran.cgi> , translated there and returned to the local computer. The preference for the Intertran site is because this can, at present, translate 729 language pairs whereas the Systran site has a more limited number of translation options. Alternatively one may use the AltaVista Babel fish at <http://babelfish.altavista.com/> or the Infoseek translator at <http://translator.go.com/> . Proprietary translation software may also be used.

The relative location of the local computer and the remote computer is not crucial to the present invention because of the easy accessibility of computers world-wide through the Internet. However the remote computer may be, for example, located at, controlled by or operated by a National or supra-national patent office (e.g. the European patent Office or the World Intellectual Property Organisation) or International Business Machines ("IBM").
5 Examples include the remote computers which host the Esp@cenet or US Patent and Trademark Office collection of patent specifications.

The present invention may also be expressed as a computer program product which,
10 when read by a computer, causes the computer, upon reception of a request from a computer user for a multi-page document stored on a remote computer, to:
translate the request into a plurality of URLs corresponding to the location of pages of the multi-page document on the remote computer;
copy the pages of the multi-page document from the remote computer by means of the
15 URLs to itself or to a computer specified by the computer user; and optionally
send or instruct the specified computer to send the multi-page document to be printed.

The multi-page document may be printed by the program or, more preferably, by a
20 second program installed on the local computer or the computer specified by the local computer.

Preferably the computer performs a further step between steps (i) and (iii) of translating the text on one or more of the pages of the multi-page document by means of a computer program from a first language to a second language which is different from the first
25 language. In such cases the printing step (iii) is optional but preferred.

More specifically, another expression of the present invention is a computer program product which, when read by a computer, causes the computer, upon reception of a request from a computer user for a multi-page document stored on a remote computer, to
30 translate the request into a plurality of URLs corresponding to the location of pages of the multi-page document on the remote computer;
instruct copying of the pages of the multi-page document from the remote computer by means of the URLs to itself or to a computer specified by the computer user; and
optionally
35 send or instruct the specified computer to send the multi-page document to be printed;
wherein text on one or more of the pages of the multi-page document is translated by means of a computer program from a first language to a second language which is different from the first language after step (i) or, more preferably, after step (ii).

40 The text is preferably in HTML format, for example so that it can be 'cut and pasted' into a Word document.

The computer program product referred to in any of the above statements of the invention may be a data carrier, especially a floppy disc, a hard disc, a compact disc ("CD") or a magnetic tape carrying the program according to the present invention. Alternatively, it may be an electronic signal, encoding the program.

The URLs, also known as Uniform Resource Locators, are addresses of documents on server computers. Browsers such as Internet Explorer, Netscape and the like loaded on a local computer are able to use the URLs to communicate by HTTP (Hyper Text Transfer Protocol) through the world wide web (WWW) on the Internet to remote computers. Information, often including embedded documents, images etc. may be downloaded from remote computers to local computers using the URLs to tell the local computer where to connect to. URLs typically have the format "service://hostname/directory path/filename". The service is often "http" or "ftp". Preferred URLs for obtaining copies of multi-page patent documents begin with <http://dips-2.dips.org> or <http://www.uspto.gov> and equivalents.

The method of the invention may further include a step of concatenating a plurality of files from the remote server (e.g. files which contain respective pages of the patent document, or files which each contain a respective set of pages) to generate a single file. The resultant single file (which may be stored on the local computer for example) is easier to handle than the separate files, e.g. for transmission to other locations, storage on disc, etc.

This possibility is particularly advantageous in the case that the plurality of files are separate graphics files, such as separate .tiff files. Software to concatenate .tiff files is already publicly available.

A method according to the invention preferably further comprises a step of the local computer or the computer specified by the local computer changing the size and/or the resolution of some or all pages of the multi-page document. The ability to change the size of the document is a big advantage because it enables the computer user to print-off the document on paper used in his own country. For example, a non-US document originally in A4 size can be reduced to fit on the size of paper commonly used in the USA. Furthermore, the freely available patent documents located on the IBM server are greater than A4 in size, leading to a great deal of paper wastage when they are printed-off. By reducing them in size to fit local paper sizes there are significant cost savings. The ability to change the resolution of the pages has the big advantage of allowing the user to save printer consumables such as toner and ink by printing of a lower resolution copy. Furthermore, lower resolution images print-off quicker, saving the computer user time.

The file format of the pages making up the multi-page document is not crucial. The pages may be in a variety of different file formats or, more preferably, they are all in the same

file format. Preferred file formats include .pdf, .html, .tif, .tiff, .jpeg, .jpg, .doc, and .xls, especially .pdf, .tiff and .tif.

5 To assist viewing and printing the multi-page documents further software will usually be installed on the local computer or the computer specified by the computer user. For multi-page documents in the .pdf file format the computer preferably has Adobe Acrobat Reader installed thereon(available from <http://www.adobe.com>), especially version 4.0 or higher as this facilitates printing of all pages without intervention by the computer user. For multi-page documents in the .tif and or .tiff file format a browser such as Internet Explorer or Netscape (preferably version 4.0 or higher) with a plugin .tif or .tiff viewer may be used. The AlternaTIFF plugin is particularly good, although other programs such as Quick View Plus, Paint Shop Pro etc may be used.

15 The pages may be changed in size and/or resolution using a standard graphics package. Paint Shop Pro works well and is available as a shareware program.

The printer is preferably a laser or ink jet printer. The sheet material is preferably a paper.

20 When the multi-page document is a patent specification preferably the computer program contains an algorithm which generates URLs corresponding to one, two or more versions of the specification. For example, the algorithm generates URLs corresponding to one or more of the A1, A2, A3, B and C specifications. This has the big advantage that a computer user often does not know in advance whether a patent was published as an A1 or A2 application, or whether it has been granted as a B or C specification. By generating URLs for all possible publications the computer user gets a complete set of available versions of the patent specification. The computer program may also enable the computer user to select which of the A1, A2, A3, B and C specifications are sent to be printed.

30 The program preferably also uses the country code (e.g. US, EP, WO, GB etc.) and optionally the patent number to determine which remote computer to download the multi-page patent documents from. Preferably the user may also specify which file format of the multi-page documents he wishes to print -off so that when two different file formats are obtained (e.g. the USPTO web site provides both .html and .tif formats for the same patent specification) he can print off only the format he wants.

35 Preferably the URL history and any errors may be viewed by the computer user. In this way he may more easily find out the cause of any difficulties in obtaining the multi-page document.

40 Preferably the program is compatible with Windows 3.x, Windows 95, 98 and NT and OS/2. The program may also allow the user to specify the proxy settings and or the ports

to be used for accessing the Internet. User identification and passwords may also be included for security reasons.

5 For each form of a method according to the invention mentioned above, the present invention also provides a computer programmed to perform that method.

Brief description of the drawings

10 Embodiments of the invention will now be described, for the sake of example only, with reference to the following figures, in which:

FIG. 1 is a flowchart illustrating a preferred embodiment of the present invention;

15 FIG. 2A is a flowchart illustrating how to obtain a copy of US patent No. 5,000,000 from the US Patent and Trademark Office website according to the method of the present invention;

20 FIG. 2B is a flowchart illustrating how to obtain a copy of GB patent application No. 2,222,222 from the Esp@cenet website according to the method of the present invention; and

FIG. 3 is a schematic drawing of the arrangement of a computer which performs a method according to the invention.

25 Detailed description of embodiments

30 As shown in FIG. 1, a computer user inputs a request for a multi page document to a local computer the user is received (step S1), and this request is translated, usually by the local computer, into a plurality of URLs (step S2). The URLs are used to download the pages to the local computer (step S3). Optionally the pages are re-sized and/or the resolution altered (step S4). Then the pages are sent to the printer (step S5) and printed off (step S6).

35 FIG. 2A and FIG. 2B illustrate two specific cases where the user inputs a request in the format "patent://US5000000" or "patent://gb2222222a1" respectively (step s1) to obtain copies of the relevant patent specifications. The requests are translated into URLs by the local computer for the USPTO and Esp@cenet servers respectively (step S2). The pages of the patent specifications are downloaded to the local computer (step S3), optionally resized/resolution altered (step S4), sent to a printer automatically (step S5) and printed
40 (step 6) to give the computer user a complete copy of the multi-page patent specification.

The program may translate the request into a plurality of URLs corresponding to the location of pages of the multi-page document on the remote computer by means of an algorithm. The algorithm may be determined by, for example, accessing the pages of the multi-page document and identifying the URLs for each page and determining the pattern used for the URL of each page. To give an example, pages 1, 2 and 3 of US patent No. 5,000,000 are currently located at the following URLs on the USPTO server:

`http://patimg1.uspto.gov/.piw?docid=US005000000&PageNum=1&IDKey=2C6AD7BCFE
FE&HomeUrl=http://164.195.100.11/netacgi/nph-
Parser?Sect1=PTO1%2526Sect2=HITOFF%2526d=PALL%2526p=1%2526u=/netahtml/s
rchnum.htm%2526r=1%2526f=G%2526l=50%2526s1='5000000'.WKU.%2526OS=PN/50
00000%2526RS=PN/5000000`

`http://patimg1.uspto.gov/.piw?docid=US005000000&PageNum=2&IDKey=2C6AD7BCFE
FE&HomeUrl=http://164.195.100.11/netacgi/nph-
Parser?Sect1=PTO1%2526Sect2=HITOFF%2526d=PALL%2526p=1%2526u=/netahtml/s
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00000%2526RS=PN/5000000`

`http://patimg1.uspto.gov/.piw?docid=US005000000&PageNum=3&IDKey=2C6AD7BCFE
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Parser?Sect1=PTO1%2526Sect2=HITOFF%2526d=PALL%2526p=1%2526u=/netahtml/s
rchnum.htm%2526r=1%2526f=G%2526l=50%2526s1='5000000'.WKU.%2526OS=PN/50
00000%2526RS=PN/5000000`

From the above one can see that page 8 would have "PageNum=8" in its URL and so on and US patent 5,000,001 will be at analogous URLs to the above except that "5000000" is replaced by "5000001". In a similar way algorithms for other patent and non-patent sites can be built-up and included in the program. When the program finds no data at a URL or receives an error message that the URL does not exist then the local computer stops copying the pages of the multi-page document.

In another example, Swiss patent 690124 may be downloaded from the Esp@cenet server starting at

`http://l2.espacenet.com/dips/bnsviewer?CY=gb&LG=en&DB=EPD&PN=CH690124&ID=C
H++++690124A5+I+ . By replacing the "69" at both places in the URL with "59" one may also download Swiss patent 590124 and so on.`

Fig. 3 shows a computer 1 (e.g. a personal computer) according to the invention. It includes a processor 3, a screen 5, a user-operated input device 7 (such as a keyboard and/or mouse device, etc). The computer includes two internal databases 9, 11, and is connected to a printer 13 proximate the computer 1.

A user uses the device 7 to specify at least one patent document (or portion of at least one patent document) to the processor 3. Normally, this information includes data specifying a remote server 17 which stores the data. Alternatively, the processor 3 may
5 have access to a database (not shown) indicating which patent documents a given set of remote servers store, so that the computer 1 can itself determine a server containing the document specified by the user, or present to the user a list of servers storing the document, so that the user himself can make the selection.

10 Based on the specification of the remote server, the processor 3 extracts information from the database 9 indicating the format of the URLs for that server. Using this information, and the information supplied by the user indicating which patent document is required, the processor 3 can generate the URLs of the pages of interest. The processor 3 may
15 communicate via a network 15 (such as the world wide web) with the remote server 17, to access the pages corresponding to the URLs, and extract the information from them.

Optionally, the computer 1 may display the information extracted, e.g. after concatenation to form a single file, on the display device 5. Then (e.g. upon a command by the user) the computer 1 may send the file to the proximate printer 13.

20 In an alternative to the above scheme, the computer may organise for the information from the server 17 to be transmitted (e.g. again using the Internet 15) to a second computer 19. This may be done by commanding the server 17 to transmit the information to the computer 19 directly, or the computer 1 receiving the information and re-
25 transmitting it.

The computer 1 further maintains a database 11 of format data, indicating printer data for various page formats. The processor 3 accesses this data to convert data received by the remote server 17 into a suitable form for printing out using printer 13 in a format which the
30 printer 13 can deal with, or, if the printer 13 can cope with any of a number of formats, one of those formats specified by the user.

Above, the invention has been explained in relation to downloading a single file, but alternatively the user may be able to specify a plurality of multi-page documents (e.g. by
35 pasting a list of numbers from a clipboard), and the method according to the invention may be performed for each of these documents.

Although a single embodiment of a computer according to the invention has been described above, the invention is not limited in this respect. Rather a number of
40 modifications are possible within the scope of the invention, as will be clear to an expert.

For example, rather than the computer 1 maintaining internal databases 9, 11, one or both of them may optionally be provided at a remote location (e.g. a central location) with which the computer 1 can communicate using the network 15. Thus, a plurality of users, each having a computer 1, may employ these databases. This make it easier to keep the system up-to-date, by modifying the databases at the central location.

5

Claims

- 5 1. A method for printing a copy of a multi-page document originally stored on a remote computer comprising the steps of:
- (i) a computer user inputting a request on a local computer for the multi-page document;
 - (ii) the local computer translating the request into a plurality of URLs corresponding to the location of pages of the multi-page document on the remote computer;
 - 10 (iii) the local computer copying the pages of the multi-page document from the remote computer by means of the URLs to the local computer or to a computer specified by computer user;
 - (iv) the local computer or the computer specified by the local sending the multi-page document to be printed; and
 - 15 (v) printing the multi-page document onto a sheet material.
2. A method according to claim 1 which does not require the intervention of the computer user between the copying of two or more pages of the multi-page document.
- 20 3. A method according to any one of the preceding claims which does not require the intervention of the computer user between the copying of the first and last page of the multi-page document.
4. A method according to any one of the preceding claims wherein the local computer and the remote computer are connected by means of a network.
- 25 5. A method according to any one of the preceding claims wherein the local computer and the remote computer are connected by means of a local area network or the internet.
- 30 6. A method according to any one of the preceding claims which further comprises the step of converting the multi-page document to a single page document after the multi-page document has been copied to the local computer or to the computer specified by the local computer.
- 35 7. A method according to any one of the preceding claims which does not require the intervention of the computer user between step (iv) and step (v).
8. A method according to any one of the preceding claims wherein the multi-page document is a patent specification.
- 40 9. A method according to any one of the preceding claims which further comprises the step(s) of the local computer or the computer specified by the local computer changing

the size and/or the resolution of some or all pages of the multi-page document and/or translating text on one or more of the pages of the multi-page document by means of a computer program from a first language to a second language which is different from the first language.

5

10. A method according to any one of the preceding claims wherein the remote computer is located at a National or supra-national patent office.

11. A method according to any one of the preceding claims wherein in place of step (ii) the remote computer translates the request into a plurality of URLs corresponding to the location of pages of the multi-page document on the remote computer, characterised in that the method does not require the intervention of the computer user between the copying of two or more pages, or preferably between the copying of the first and last page, of the multi-page document.

12. A method for downloading a copy of a multi-page document originally stored on a remote computer comprising the steps of:

- (i) a computer user inputting a request on a local computer for the multi-page document;
- (ii) the local computer transmitting the request to a remote computer which translates the request into a plurality of URLs corresponding to the location of pages of the multi-page document on the remote computer; and
- (iii) the local computer copying the pages of the multi-page document from the remote computer by means of the URLs to the local computer or to a computer specified by computer user.

13. A method according to claim 12 in which the local computer or computer specified by the computer user concatenates the multi-page document to form a single electronic file.

14. A method according to claim any of claims 1 to 13 wherein the remote computer hosts the Esp@cenet or US Patent and Trademark Office collection of patent documents.

15. A computer program product which causes a computer, upon reception a request from a computer user for a multi-page document stored on a remote computer, to:

- (i) translate the request into a plurality of URLs corresponding to the location of pages of the multi-page document on the remote computer;
- (ii) copy the pages of the multi-page document from the remote computer by means of the URLs to itself or to a computer specified by the computer user; and
- (iii) optionally send or instruct the specified computer to send the multi-page document to be printed.

16. A computer program product according to claim 15 which does not require the intervention of the computer user between the copying of two or more pages of the multi-page document.

17. A computer program product according to claim 15 or claim 16 which does not require the intervention of the computer user between the copying of the first and last page of the multi-page document.

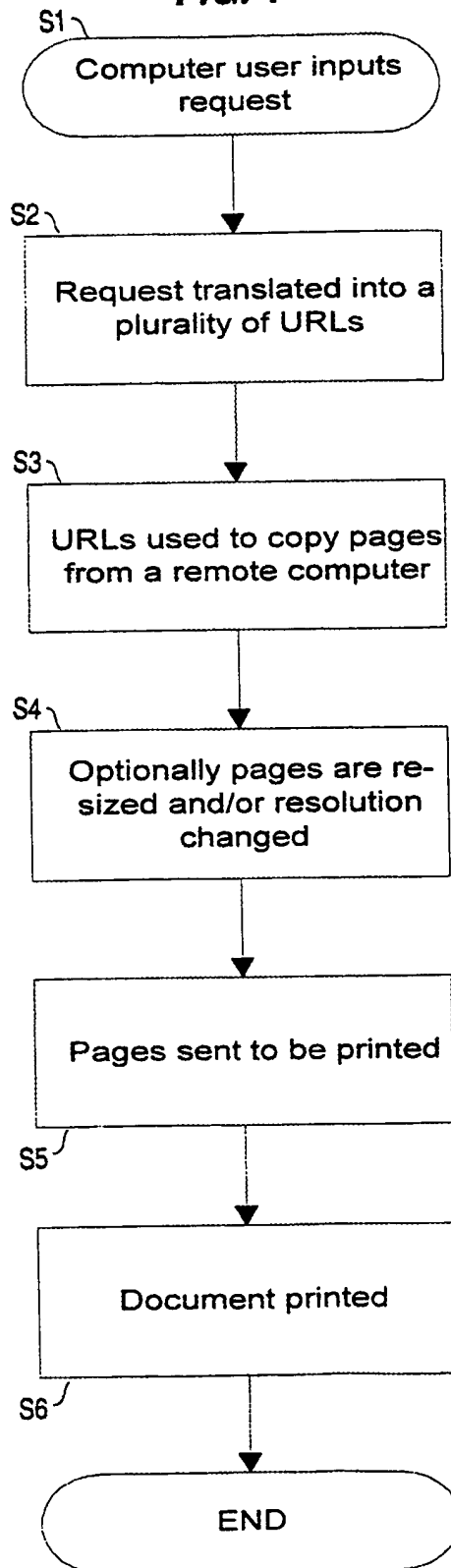
FIG. 1

FIG. 2A

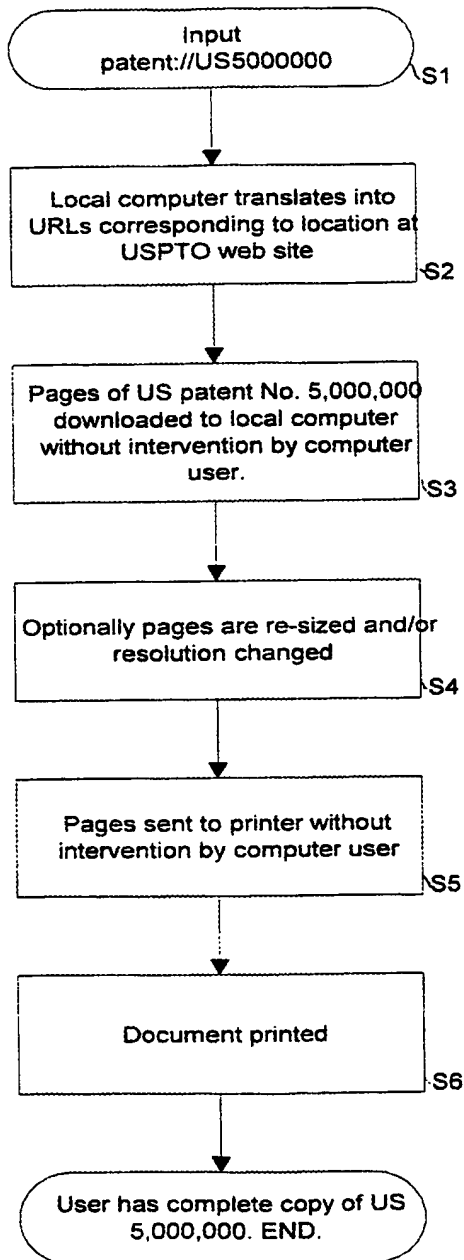


FIG. 2B

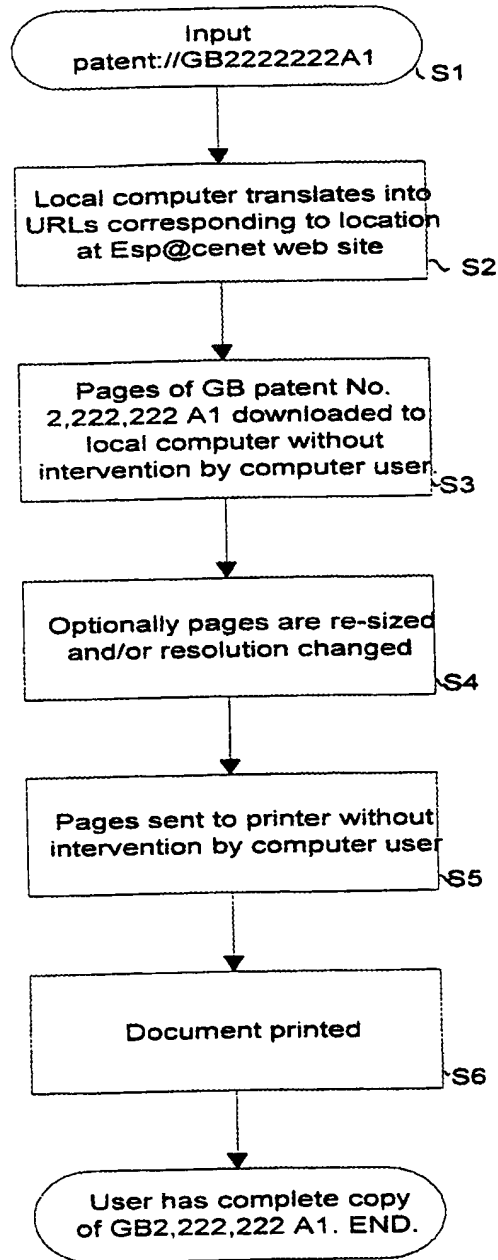
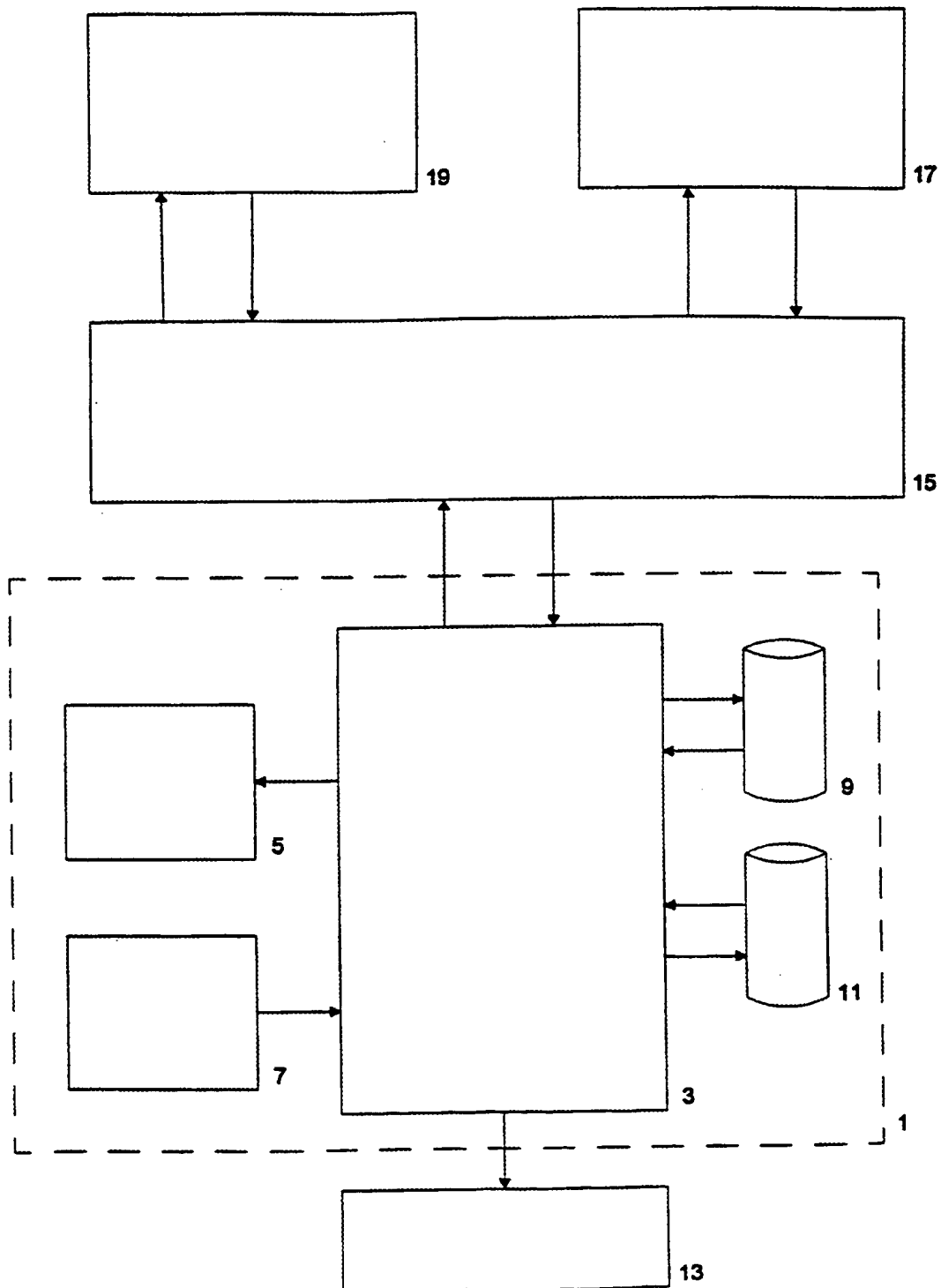


FIG. 3

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